

Patent claims:

1. Use of an inhibitor of the multidrug resistance
5 protein 4 (MRP4) in platelets for the treatment
and/or prophylaxis of cardiovascular diseases.
2. The use according to claim 1, characterized in
that the treatment and/or prophylaxis of
10 cardiovascular diseases is the therapy, primary
prophylaxis and/or secondary prophylaxis of acute
coronary syndrome, angina pectoris, cardiac
infarction, stroke or peripheral arterial
occlusive disease before, during and after stent
15 implantation in vessels.
3. The use according to claim 1 and 2, characterized
in that the active compound is an amphiphilic
organic, neutral or anionic compound having a
20 molecular weight of about 200 to 1000 daltons
(Da), which inhibits the MRP4-mediated transport
of nucleotides.
4. The use according to claim 3, characterized in
25 that the active compound is dipyridamole,
indomethacin, ibuprofen, inhibitors of organic
anionic transporters such as probenecid and
sulfinpyrazone, structural analogs of cyclic
nucleotides such as sildenafil, trequensin,
30 zaprinast (phosphodiesterase inhibitors) and of
the leukotriene receptor antagonist MK571.
5. Process for the identification of a substance
which inhibits the ADP transporter protein MRP4 in
35 platelets, characterized in that
 - a) the substance to be investigated is brought
into contact with platelets in vivo or in

5 vitro, a platelet activator is added and the change in the concentration of an activation marker in comparison to activated platelets which are not brought into contact with the substance to be investigated is measured (in vivo or in vitro), and

10 b) in membrane vesicles comprising MRP4 or granules which are likewise brought into contact with the substance to be investigated, the change in labeled, absorbed cAMP or cGMP is measured in comparison to membrane vesicles or granules which are not brought into contact with the substance to be investigated,

15 the substance inhibiting the ADP transporter protein MRP4 in platelets if the substance in a) and/or b) in each case leads to a decrease in the particular measurement.

20 6. The process according to claim 5, characterized in that furthermore

25 c) the substance to be investigated is brought into contact with platelets in vivo or in vitro and the ADP concentration in the platelets is determined before and after,

30 the substance inhibiting the ADP transporter protein MRP4 in platelets if the substance in a) and/or b) and/or c) in each case leads to a decrease in the particular measurement.

35 7. The process according to claim 5 or 6, characterized in that a) and b) or a) and b) and c) are carried out in any desired sequence.

8. Process for the preparation of a pharmaceutical composition for the treatment and/or prophylaxis

of cardiovascular diseases, characterized in that a process according to claims 4 to 7 is carried out and the substances identified are formulated using pharmaceutically acceptable excipients and/or carriers.

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9. The process according to claim 8, characterized in that the treatment and/or prophylaxis of cardiovascular diseases is the therapy, primary prophylaxis and/or secondary prophylaxis of acute coronary syndrome, angina pectoris, cardiac infarction, stroke or peripheral arterial occlusive disease before, during and after stent implantation in vessels.

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10. Use of a substance identified by the process of claims 4 to 7 for the treatment and/or prophylaxis of cardiovascular diseases.

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11. The use according to claim 10, characterized in that the treatment and/or prophylaxis of cardiovascular diseases is the therapy, primary prophylaxis and/or secondary prophylaxis of acute coronary syndrome, angina pectoris, cardiac infarction, stroke or peripheral arterial occlusive disease before, during and after stent implantation in vessels.

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